

## UA Seedless Watermelon Cultivar Trial - 1991

*N. F. Oebker, T. W. McCreary, R. L. Roth, T. A. Doerge, J. W. Pier and R. D. Gibson*

### Abstract

*Seedless watermelons have become an important commodity in Arizona. In 1991 16 cultivars were compared and evaluated at the Maricopa Agricultural Center. Tri-X 313 had overall good performance and remains the standard. Several other cultivars show promise.*

### Introduction

Seedless watermelons have been around since the 1950's, but only recently the increased demand by consumers has made the growing of this specialty crop worthwhile. Promotional programs have increased the desire of the consumer for the seedless type. Even though the cost of production (expensive seed and special care) is higher than for regular watermelons, some growers have found the seedless melon a profitable crop.

Since the 1950's, the standard cultivars were Tri-X 313 and related types developed by Dr. O. J. Eigsti, American Seedless Watermelon Seed Corp. During the last few years other seed companies have introduced new varieties.

The purpose of this trial was to compare and evaluate existing cultivars of seedless watermelons under the conditions of Central Arizona.

We wish to acknowledge the following companies for supplying seed: Abbott & Cobb, American Takii, Asgrow Seed, Hollar, Known-You, Northrup King, Petoseed, and Sun World. Also we appreciate the cooperation of Keithly-Williams Seeds in helping us acquire seed.

### Procedure

The trial plots were located at the University of Arizona Maricopa Agricultural Center near Maricopa, Arizona. This study was held in conjunction with the UA's Department of Soil and Water Science, Fertility Group's 1991 BMP for Watermelon Study in Field 113.

The field had previously been sown with Sudan grass, multicut, with cuttings removed to reduce soil nitrogen. Soil nitrate at melon planting was less than 2 ppm NO<sub>3</sub>-N. Following the last Sudan cutting and removal, the field was deep plowed (18") and doubled disked. The melon beds were set with a border disk, with rows running east to west on 80" centers. The beds were then shaped and the irrigation drip tape (Chapin Twin Wall IV, 9" emitter spacing) injected in one operation with a modified sled type melon bed shaper. The beds had an ~20° south faced slope and an ~50° north slope. The drip tape was injected 20" from the south furrow center and 8" below the surface. A rhino blade was used to remove the crest of the bed off to the north side about 4" above the seed line which was directly over the drip tape.

Transplants were used in establishing plantings in the field. These plants were started from seed placed in a growing medium (2 peatmoss, 1 sand, and 1 vermiculite) in the greenhouse on March 4 and 5, 1991. On April 11 the potted plants were set into the field. The plants were spaced 36" apart directly over the drip tape in 50 foot long plots. Five varieties were planted in a randomized block design with four replications. Eleven varieties had only one plot for observation. One row of pollinator (Picnic) was planted for every two rows of seedless.

For pollination four hives of honey bees, with four supers each, were brought into the field just prior to first flowering. Bees were provided by the USDA Carl Hayden Bee Research Laboratory, Tucson, Arizona.

Prior to transplanting all plots received phosphorous in the form of phosphoric acid 0-26-0, at the rate of 168 kg P<sub>2</sub> O<sub>5</sub>/ha by injection in the water in the drip tape lines.

Nitrogen was applied as Solution 32 (urea-ammonium nitrate) by injection in the drip tape as shown in Table 1.

Table 1. Nitrogen fertility schedule for seedless watermelon trial, 1991

Date	Growth Stage	N Rate	
		lbs/ac	kg/ha
18 April	Transplant	53	59
14 May	Early runner	45	50
28 May	Mid-runner	89	100
11 June	Half-size melons	63	71
	Total	250	280

Harvest of plots started on 6/28 and was terminated on 7/19. Yields and characteristics of cultivars were observed and recorded. Yields of cultivars in replicated plots were analyzed by analysis of variance.

## Results and Discussion

The results of observations and measurements on each cultivar are summarized in Table 2. In the replicated plots the differences in yields were not significant when analyzed by analysis of variance. Overall preference favored Tri-X 313 because of early yield, appearance and quality. Tiffany, with good quality and appearance, showed promise. Others may have potential but need to be evaluated further.

Table 2. Yields and characteristics of seedless watermelons in cultivar trial, Maricopa Agricultural Center 1991

Cultivar Name	Source	Accumulative yield (kg/plot) up to date <sup>2</sup>			Vine cover <sup>3</sup>	% Soluble solids	Average fruit wt (kg)	Flavor <sup>4</sup>	Seeds	Fruit		Internal color	Texture	Defects
		7/7	7/16	7/19						Shape	Color			
(Replicated plots)														
Tiffany	AS	34.8	83.3	104.0	4.0	10.0	6.26	4.0	few	oval	dk grn	light	very crisp	good internal
Tri-X 313	SW	54.4	106.4	130.6	3.0	10.3	6.86	4.0	few	oval to oblong	green-yellow striped	red	very crisp	
Crimson Trio	NK	35.4	89.6	115.2	3.0	9.7	6.76	3.0	many white	round to oval	green-yellow striped	red	OK	
King of Hearts	PS	39.2	95.2	145.5	2.5	9.9	6.40	3.75	some	oval to oblong	green-yellow striped	red	OK	water soaked edges
Farmers Wonderful	KY	49.4	106.4	143.1	3.5	10.6	6.67	3.25	some	oval	dark-green striped	light red	OK	hollowheart, sunburn
(Single Plot Observations)														
Scarlet Trio	NK	25.2	96.9	133.3	3.0	9.6	8.00	2.5	some	round to oval	light-green striped	pink	OK	rind rot
Honeyheart	PS	14.5	89.9	101.3	3.0	11.4	5.96	4.0	some	round to oval	light-green striped	yellow	OK	
5344	AC	22.5	64.0	126.8	4.0	9.9	7.05	2.0	some	oval	green-yellow striped	pink	OK	rind rot
4073	AC	41.3	82.0	94.4	3.0	9.4	4.70	1.0	some	oval	green-yellow striped	light red	not crisp	hollowheart
5032	AC	64.8	86.3	114.9	3.0	10.2	6.76	2.5	some	round to oval	green-yellow striped	light red	not crisp	hollowheart, rind rot
2532	AC	19.6	54.2	115.3	2.0	10.3	8.24	3.0	some	oval	light-green striped	red	very crisp	
5244	AC	61.3	85.1	142.7	3.0	10.1	6.80	4.0	few	oval	light-green striped	light red	OK	white strings
Laurel	TK	51.3	86.8	146.6	4.0	9.6	7.33	2.5	few	oval	green-yellow striped	pink	OK	rind rot
Quality	KY	56.0	96.9	155.0	4.0	9.1	5.96	2.0	few	round to oval	green-yellow striped	pink	very crisp	
Fengshan #1	KY	0.00	39.2	153.9	3.0	10.0	6.41	3.0	few	round to oval	almost solid green	orange red		
Jupiter	TK	15.6	42.4	98.6	3.0	9.9	5.48	3.0	few	round to oval	solid green	bright red	OK	

<sup>1</sup>Seed sources: Asgrow (AS); Sun World (SW); Northrup King (NK); Peto Seed (PS); Known-You (KY); Abbot & Cobb (AC) and Takii (TK) - Pollinator was Picnic (Hollar). Transplanted - April 11, 1991.

<sup>2</sup>For replicated plots this yield is the average of 4 replications. Each plot area is 2 meters x 10 meters. Harvesting started 6/28. For conversion to: (1) metric tons/ha multiply kg/plot by 0.50, (2) tons/acre multiply kg/plot by 0.222.

<sup>3</sup>Rating: 1 = Poor; 5 = Good coverage.

<sup>4</sup>Rating: 1 = Very poor; 3 = acceptable; 5 = excellent.